

HANDLEBAR MOUNTING APPARATUS

Field of the Invention

5 The invention relates generally to handlebars for vehicles. More particularly, the invention relates to an apparatus and method for mounting handlebars to a vehicle.

Background

10 It is generally known to use handlebars as a component of a steering mechanism for vehicles, for example, motorcycles, snowmobiles, ATV's, bicycles, tricycles, and other like vehicles. The prior art offers a number of different structures and mechanisms for mounting handlebars to vehicles. Each of these different structures and mechanisms have certain advantages and disadvantages. There is an ongoing need to provide design alternatives for mounting a handlebar to a vehicle.

Summary of Example Embodiments of the Invention

15 To this end, the invention relates to mounting a handlebar to a vehicle.

20 For example, one embodiment provides an apparatus for mounting a handlebar to a vehicle including two mounts. Each mount includes a first portion and a second portion. The first portion is adapted and configured to be connected to the handlebar such that the handlebar is selectively rotatable about a first axis to allow for adjustment of the axial orientation of the handlebar relative to the vehicle. The second portion is adapted and configured to be connected to the vehicle for selective, eccentric rotation of the mounts about a second axis to allow for selective height and position adjustment of the handlebar in relation to the vehicle.

Another exemplary embodiment includes a vehicle including a handlebar and a handlebar mounting apparatus for mounting the handlebar to the vehicle, the handlebar mounting apparatus including two handlebar mounts. Each mount includes a riser member including a first portion and a second portion. Each mount also includes a handlebar connecting structure adapted and configured for selective connection of the handlebar to the first portion of the riser member and allow for selective rotation of the handlebar about a first axis for adjustment of the orientation of the handlebar in relation to the vehicle. Each mount also includes a vehicle connecting structure adapted and configured for selective connection of the riser member to the vehicle and allow for selective eccentric rotation of the riser member about a second axis to allow for height adjustment of the handlebar in relation to the vehicle.

Another exemplary embodiment provides a method for mounting a handlebar to a vehicle. The method includes providing two or more mounts, and connecting the handlebar to a first portion of the mount which is adapted and configured to allow for selective rotation of the handlebar about a first axis for adjustment of the orientation of the handlebar in relation to the vehicle. The method also includes connecting a second portion of the mounts to a vehicle to allow for selective, eccentric rotation of the mounts about a second axis to allow for height and position adjustment of the handlebar in relation to the vehicle.

These and other embodiments of the invention will be described in more detail in the following detailed description with reference to the drawings.

Brief Description of the Drawings

Figure 1 is a partial perspective view of a handlebar mounting apparatus in accordance with one exemplary embodiment of the invention;

Figure 2 is a partial exploded perspective view of the handlebar mounting apparatus of Figure 1;

Figure 3 is a partial cross-sectional view of the handlebar apparatus of Figure 1 taken along lines 3-3 of Figure 1, showing selective movement of the handlebar and mounting apparatus in phantom; and

Figure 4 is a partial exploded view of another exemplary embodiment of a handlebar mounting apparatus.

Detailed Description of Some Example Embodiments

The following detailed description should be read with reference to the drawings in which similar elements and different drawings are numbered the same. The drawings, which are not necessarily to scale, depict illustrative embodiments that are not intended to limit the scope of the invention.

Those skilled in the art and others will recognize that the invention can be manifested in a variety of forms other than the specific embodiments described and contemplated herein. Accordingly, departures in form and detail may be made without departing from the scope and spirit of the invention as described in the appended claims.

Figures 1-3 show one exemplary embodiment of a handlebar mounting apparatus 10 as adapted and configured for mounting a handlebar 12 to a steering structure 13 of a vehicle 11.

Referring to Figures 1 and 2, the apparatus 10 includes a pair of mounts, or mount assemblies 14. The mounts 14 are adapted and configured to be connected to a handlebar 12 such that the handlebar is selectively rotatable within the mounts to allow for selective orientation of the handlebar relative to the vehicle. In this embodiment, each mount 14 includes a riser member 18

having a body 20. Each riser member 18 includes an upper portion 22 and a lower portion 24. The upper portion 22 includes an upper surface 28. The upper surface 28 is preferably adapted and configured to mate with a portion of the handlebar 12 as will be discussed in more detail below. In the embodiments shown, the surface 28 preferably defines a semi-circular groove 32 for mating with a portion of the handlebar 12.

The lower portion 24 includes a projection 40 thereon. Preferably, the projection 40 is generally cylindrical in shape. However, those of skill in the art will recognize that other shapes can be used. Preferably, the projection 40 extends generally perpendicular from the body 20 of the riser 18, but it is contemplated that in other embodiments, the projection may extend away from the body 20 at angles other than right angles.

The mounts 14 each also include structure to couple the riser 18 to the handlebar 12. Such structure preferably includes any structure that allows the handlebar 12 to be coupled to the riser 18 while allowing for selective rotation of the handlebar 12 about a first axis to allow for adjustment of the axial orientation of the handlebar 12 relative to the vehicle. Those of skill in the art will be able to contemplate a variety of structures that can achieve this desired result. In the embodiment shown, the handlebar connecting structure includes a clamping structure 48 adapted and configured to engage the handlebar 12 and couple to the upper portion 22 of the riser 18. Referring to Figure 2, the clamping structure 48 includes a lower surface 52 and upper surface 54. The lower surface 52 defines a semi-circular groove 56 which is adapted and configured to mate with the handlebar 12. The upper surface 54 includes a pair of apertures 60 which extend through the clamping structure. A pair of threaded bolts 64 are provided which are adapted to extend through aperture 60 and engage with threaded aperture 36 in the upper surface 28 of the riser 18.

As shown in Figure 1, the handlebar 12 is coupled to the riser members 18 by placing the handlebar 12 in the semi-circular grooves 32 formed in the upper surface 28 of the risers 18, and placing the upper clamping structures 48 such that the semi-circular grooves 56 engages the handlebar 12. Threaded bolts 64 are then inserted through apertures 60 and tightened into threaded apertures 36 to couple the handlebar 12 to the risers 18. Referring to Figure 3, which shows the selective rotation of the handlebar about axis X, the handlebar 12 can selectively be maintained in a fixed position relative to the risers 18, or, can selectively be rotated about a first axis X by the loosening of the threaded bolts 64 to allow for rotation of the handlebar about axis X. In such a manner, the handlebar is selectively rotatable about the axis X for adjustment of the axial orientation of the handlebar relative to the vehicle.

The mounts 14 also each include structure that is adapted and configured to couple the mounts 14 to the vehicle for selective, eccentric rotation of the mounts 14 about a second axis to allow for selective height and position adjustment of the handlebar 12 in relation to the vehicle. Those of skill in the art will be able to contemplate a variety of structures to achieve this desired result. Referring to Figures 1 and 2, in the embodiments shown, such structure can include a lower clamping structure including clamp members 72 which are adapted and configured to mate with a portion of the steering structure 13, for example a vehicle handlebar mounting plate 74, of the vehicle 11. The clamp members 72 each include an upper surface 76 and a lower surface 78, the lower surface defines a semi-circular groove 80 which is adapted and configured to mate with the outer surface 44 of the projection 40. The mounting plate 74 of the vehicle typically includes an upper surface 82 which is often adapted and configured to mate with a handlebar to connect the handlebar to the vehicle. In this embodiment, the upper surface of the mounting plate 74 on the vehicle defines a semi-circular groove 84 therein. The outer surface 44 of the

projection 40 on the riser is adapted and configured to mate with the semi-circular groove 84 in the vehicle handlebar mounting plate 74. The mounting plate 74 also includes a plurality of openings 86 extending therethrough. Referring to Figure 1, the clamping member 72 and the mounting plate 74 are adapted and configured to clamp the projection 40 therebetween. A series of bolts 88 extend through washers 90 and then through clamp members 72 and mounting plate 74. The bolts 88 also extend through an upper surface 15 of a vehicle steering structure 13. Nuts 82 engage the threaded portion of the bolts 88 to maintain the entire structure onto the upper portion of the vehicle steering structure 13.

Referring to Figure 3, which shows the selective movement of the mounts 14 about axis Y, the mounts 14 are connected to the vehicle and can selectively be maintained in a fixed position relative to the vehicle, or can be selectively rotated in an eccentric manner about axis Y by the loosening of the nuts 82 on the bolts 88. The selective eccentric rotation of the mounts about a second axis Y provides for selective height and position adjustment of the handlebar in relation to the vehicle. As seen in Figure 3, as the mounts 14 are rotated about axis Y, the handlebar can be adjusted in both a vertical and a horizontal manner.

The first and second mounts 14 are preferably spaced in relation to one another when connected to the vehicle steering structure 13 and handlebar 12. In this embodiment, the fact that there are two mounts 14 allows for adaptation of the handlebar mounting apparatus 10 to a broad variety of vehicles. For example, many vehicles may have different vehicle steering structures that may or may not be the same size across a broad range of vehicles. The use of multiple mounts or mounting assemblies allows such mounting assemblies to be separated or spaced from one another. Therefore, the spacing of the mounts can be varied to offer fit of the apparatus on

different sized vehicles. Such universal fit allows for the use of the handlebar mounting apparatus 10 in a broad variety of vehicles and applications.

In the embodiment shown in Figures 1-3, the mounts 14 can be spaced in relation to one another when connected to a vehicle, and this spacing can be varied to adapt to different sized vehicles. For example, in the embodiment shown, the mounts can be adapted for use on a vehicle with a different sized or configured mounting plate 74.

Another example embodiment is shown in Figure 4. Figure 4 shows the handlebar mounting apparatus substantially similar to that shown in Figure 1, wherein like reference numerals are used to indicate like structures. The only difference in the embodiment shown in Figure 4 is that instead of the vehicle including a singular mounting plate 74, a pair of mounting plates 174 are shown. The handlebar mounting assembly remains the same, and can be mounted to the vehicle including the pair of mounting plates 174.

As discussed above, the mounting plates 74 in Figures 1-3 and 174 in Figure 4 are examples of typical structure found on steering assemblies of vehicles. Those of skill in the art and others will recognize that other steering structures exist, and that the handlebar mounting apparatus and method can be appropriately modified for use on these alternative structures. Additionally, it is contemplated that in some example embodiments, the handlebar mounting apparatus can include such mounting plates to be mounted onto the existing vehicle steering structure.

It should be understood to those of skill in the art and others will recognize that a broad variety of structures can be used to connect the handlebar to the upper portion of the risers for selective rotation about the first axis and allow for adjustment of the axial orientation handlebar relative to the vehicle. It should also be understood that those of skill in the art and others will

contemplate additional structure that allow the lower portion of the mounts to be connected to the vehicle for selectively eccentric rotation of the mounts about the second axis to allow for selective height and position adjustment of the handlebar in relation to the vehicle. Such contemplated structures may be used without departing from the spirit and scope of the invention.

Having thus described the preferred embodiments of the invention, those of skill in the art will readily appreciate that other embodiments may be made and used within the scope of the claims hereto attached. It will be understood that this disclosure is, in many respects, only illustrative. Changes can be made in details, particularly in matters of shape, size and arrangement of parts without exceeding the scope of the invention. The invention's scope is, of course, defined in the language in which the appended claims are expressed.